

Appl. No. 09/938,399
Amdt. dated September 18, 2003
Reply to Office Action of on May 19, 2003

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (currently amended) An apparatus ~~for processing~~ for forming a first dielectric layer and a second layer on a semiconductor substrate, the apparatus comprising:

(a) a first atmospheric deposition station comprising a first material used to form the first dielectric layer on the semiconductor substrate;

(b) a second atmospheric deposition station comprising an atmospheric pressure vapor deposition chamber and comprising a second material used to form the second layer on the semiconductor substrate, wherein the first atmospheric deposition station and the second atmospheric deposition station are coupled together; and

(c) a substrate handling system adapted to transfer the substrate into and out of substrates between the first atmospheric deposition station and the second atmospheric deposition station, and

wherein a plasma system is associated with the atmospheric pressure vapor deposition chamber.

Claim 2. (original) The apparatus of claim 1 wherein the first atmospheric deposition station comprises a spin coating chamber.

Claim 3. (original) The apparatus of claim 1 wherein the first atmospheric deposition station comprises an ultrasonic spray deposition device.

Claim 4. (canceled)

Claim 5. (previously presented) The apparatus of claim 1 wherein the plasma system is a remote plasma system that is adapted to form a plasma upstream of the atmospheric pressure vapor deposition chamber.

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Claim 6. (original) The apparatus of claim 1 further comprising a curing station capable of curing the first material on the semiconductor substrate.

Claim 7. (currently amended) The apparatus of claim 1 wherein the ~~substrates are semiconductor substrates~~ first material comprises a sol-gel material.

Claim 8. (currently amended) The apparatus of claim 1 wherein the first ~~atmospheric deposition station is adapted to deposit a layer to be formed into~~ layer is a porous dielectric layer on the substrate, and the second layer is ~~second atmospheric deposition station is adapted to deposit a capping layer on the porous dielectric layer.~~

Claim 9. (previously presented) The apparatus of claim 1 wherein the atmospheric pressure vapor deposition chamber is an atmospheric pressure chemical vapor deposition (APCVD) chamber.

Claim 10. (original) The apparatus of claim 1 wherein the first atmospheric deposition station comprises a liquid dispenser.

Claim 11. (currently amended) An apparatus for forming a first porous dielectric layer and a second capping layer on a semiconductor substrate ~~processing semiconductor substrates~~, the apparatus comprising:

- (a) an atmospheric chemical vapor deposition chamber;
- (b) a plasma system associated with the atmospheric chemical vapor deposition chamber;
- (c) a spin coating chamber coupled to the atmospheric chemical vapor deposition chamber;
- (d) a curing station coupled to the atmospheric chemical vapor deposition chamber; and

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(e) a substrate handling system adapted to transfer substrates between the atmospheric chemical vapor deposition chamber, the spin coating chamber, and the curing station,

wherein the spin coating chamber comprises a first material comprising a sol-gel solution used to form the first porous dielectric layer and wherein the atmospheric chemical vapor deposition chamber comprises a second material used to form the second capping layer, and wherein the curing chamber is capable of curing the sol-gel solution to form the first porous dielectric layer.

Claim 12. (original) The apparatus of claim 11 wherein the plasma system is a remote plasma system adapted to generated a plasma upstream of the atmospheric chemical vapor deposition chamber.

Claim 13. (original) The apparatus of claim 11 wherein the substrate handling system comprises a plurality of substrate handlers with arms.

Claim 14. (original) The apparatus of claim 11 wherein the apparatus is a cluster tool.

Claim 15. (currently amended) The apparatus of claim ~~11~~ 13 wherein the ~~apparatus is a cluster tool~~ spin coating chamber is adapted to deposit a layer that is to be formed into a porous dielectric layer, and wherein the atmospheric chemical vapor deposition chamber is adapted to deposit a cap layer on the porous dielectric layer.

Claims 16.-23. (canceled)

Claim 24. (currently amended) The apparatus of claim 1 wherein the plasma system is a remote plasma system that is adapted to form a plasma upstream of the atmospheric pressure vapor deposition chamber, ~~wherein the substrates are semiconductor substrates, wherein~~ the atmospheric pressure vapor deposition chamber is an APCVD chamber, and wherein the

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apparatus further comprises a curing station coupled to the first and second atmospheric deposition stations.

Claim 25. (previously presented) The apparatus of claim 1 wherein the first atmospheric deposition station comprises a spin coating chamber, and wherein the apparatus further comprises an annealing chamber, a silylation chamber, and a curing chamber coupled to the first atmospheric deposition station and the second atmospheric deposition station.